DAYANANDA SAGAR UNIVERSITY



"Rapid Tracer"

SCHOOL OF ENGINEERING

Department of Computer Science & Engineering (Artificial Intelligence and Machine Learning)

Date of Event (3rd May 2024)

DAYANANDA SAGAR UNIVERSITY

DEVARAKAGGALAHALLI, HAROHALLI, KANAKAPURA RD, DIST. RAMANAGARA, KARNATAKA-562112

SCHOOL OF ENGINEERING

DEPARTMENT OF CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

ORGANISED BY

यंत्रRove

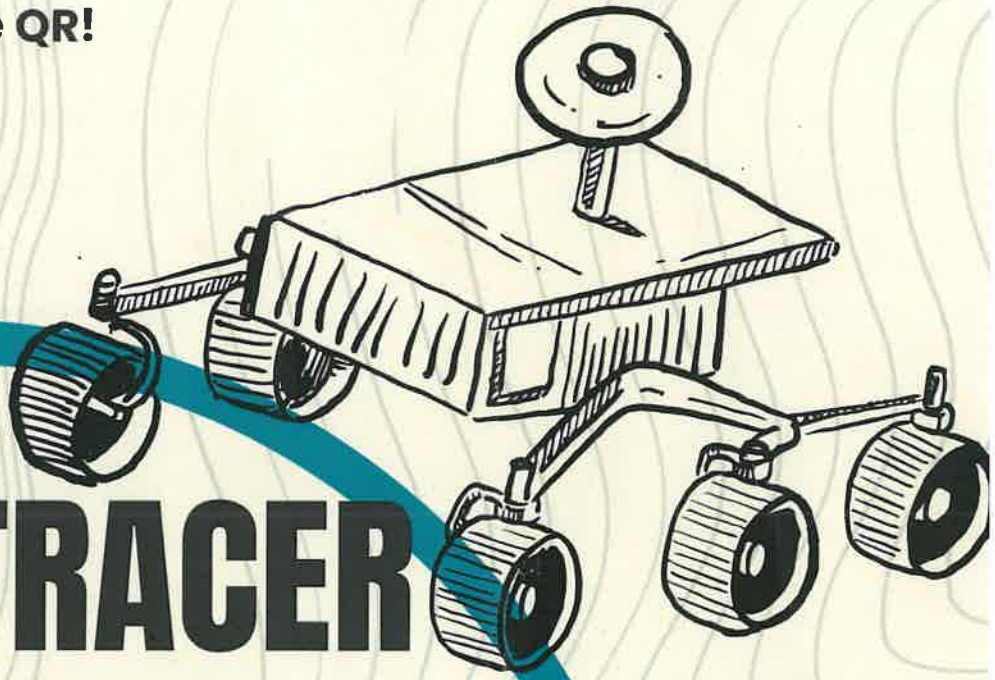
3rd May, 2024

9:30am-4:00pm

IN ASSOCIATION WITH

IEEE RAS SBC DSU

To register scan the QR!



RAPID TRACER

- Build a robot which can follow a line at a fast pace.
- There will be 3 levels with 3 different maps to be traversed each with increasing level of difficulty.
- The Bot which takes the least amount of time will move up to level 3.
- Winners will be selected based on time taken.
- Cash rewards will be granted to the winners !

FACULTY MENTOR:
Dr. Joshuva Arockia Dhanraj , Associate Professor , Dept. of CSE(AI&ML)

FACULTY COORDINATORS:
Prof. Subhash Mondal , Assistant Professor , Dept. of CSE(AI&ML)
Prof. Mitha Guru, Assistant Professor, Dept. of CSE(AI&ML)

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CONVENERS:
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In-charge Vice Chancellor, DSU
Dr. Puttamadappa C
Registrar, DSU
Dr. Udaya Kumar Reddy KR
Dean, School of Engineering, DSU
Dr. Ramesh R Galigekere
Dean, (Acad) Science & Technology, DSU
Dr. Jayavrinda Vrindavanam V
Professor & Chairperson, CSE (AI & ML), DSU

SCHOOL OF ENGINEERING

Dayananda Sagar University

Devarakaggalahalli, Harohalli Kanakapura Road, Ramanagara, Karnataka 562112

Department Of Computer Science & Engineering
(Artificial Intelligence & Machine Learning)

REPORT ON

"RAPID TRACER"

Organized by
"YANTROVE"

In association with
IEEE Robotics and Automation Society SBC, DSU

Dayananda Sagar University
3rd MAY 2024

Guest of honor:
Dr. Gopal Sharma Joshi, Professor, Space Research, CSST, DSU

Conveners:
Dr. Amit Bhatt, In-charge Vice Chancellor, DSU
Dr. Puttamadappa C, Registrar, DSU
Dr. Udaya Kumar Reddy K R, Dean, SoE, DSU
Dr. Ramesh R Galikere, Dean (Academics), Science & Technology, DSU
Dr. Jayavrinda Vrindavanam V, Chairperson, and Professor, Department of CSE (AI & ML), DSU

Faculty Coordinators:
Prof. Subhash Mondal, Assistant Professor, Department of CSE (AI & ML)
Prof. Mitha Guru, Assistant Professor, Department of CSE (AI & ML)

Faculty Mentor:
Dr Joshuva Arockia Dhanraj, Associate Professor, Department of CSE (AI & ML)

Student Coordinator:
Utpal Kumar, Department of CSE (AI & ML)
Ganna Shree, Department of CSE (AI & ML)
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R Sujay, Department of CSE (AI & ML)

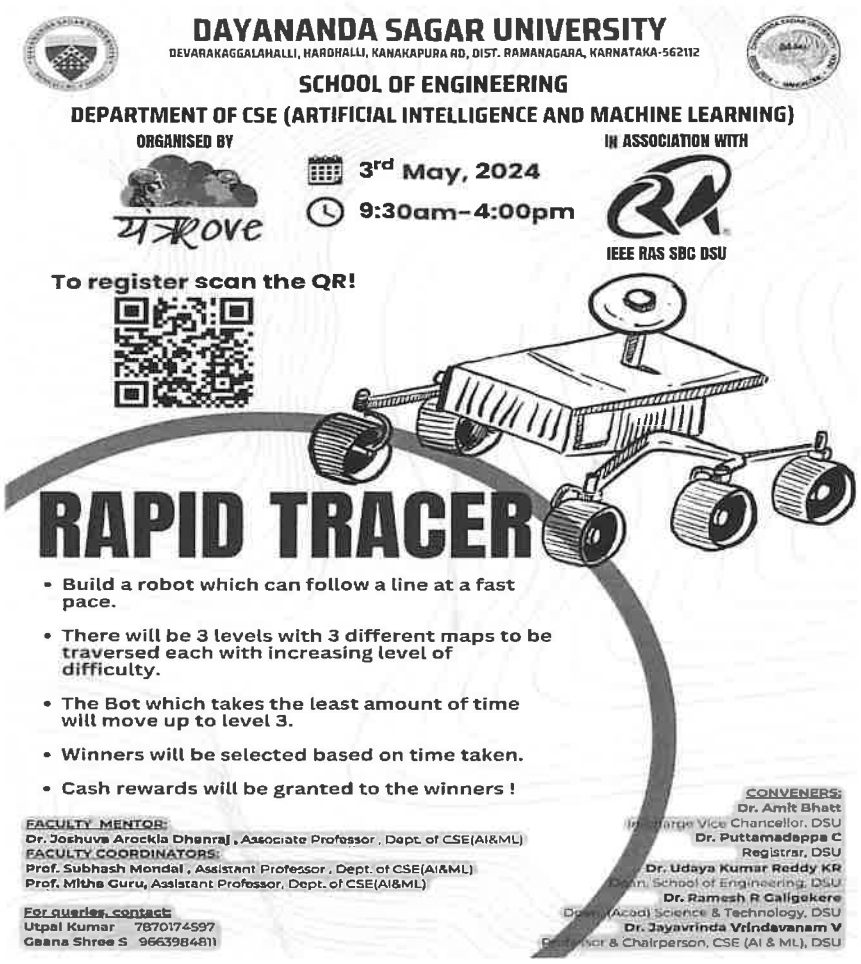


Figure 1: Event Poster

Date: 3.05.2024

Event Report

Part-1 -Inaugural

The "Rapid Tracer" event, jointly organized by a Robotics Club "Yantrove" & IEEE RAS SBC, DSU, marked a significant convergence of innovation and competition in the realm of robotics. This exhilarating event brought together a multitude of line-follower robots, each meticulously engineered to navigate predefined paths with speed and precision. Over the course of three intense rounds, participants showcased the culmination of their dedication and technical prowess, vying for supremacy in a dynamic arena where every maneuver mattered. The event not only served as a platform for showcasing cutting-edge advancements in robotics but also fostered a spirit of camaraderie and collaboration among enthusiasts and professionals alike. As the competition unfolded, it became evident that the "Rapid Tracer" event stood as a testament to the boundless potential of robotics and the relentless pursuit of excellence within the field.

The inaugural ceremony of the "Rapid Tracer" event set a tone of excitement and anticipation as esteemed guests gathered to kick off the proceedings. **Dr. Gopal Sharma Joshi**, renowned for his contributions to the field of robotics, graced the occasion as the Guest of Honor, lending his expertise and encouragement to the participants. Accompanying him were **Dr. Udaya Kumar Reddy K R, Dean, SoE** of the institution, and **Dr. Jayavrinda Vrindavanam V, Chairperson** of the Department, whose presence added prestige to the event. Their collective insight and support underscored the significance of the competition, emphasizing its role in fostering innovation and collaboration within the robotics community.



Figure 2: Dr Gopal Sharma Joshi, Dr Udaya Kumar Reddy and Dr Jayavrinda Vrindavanam at inaugural session.

As the event progressed, the atmosphere buzzed with anticipation and energy, with each round of the competition intensifying the excitement. Line follower robots, meticulously crafted and programmed by their respective teams, took to the arena with precision and determination, navigating through challenging courses with remarkable agility. Ms. Gaana Shree, one of the student coordinators charmed the audience, guiding them through the various segments of the competition with finesse and flair. Dr. Joshuva Arockia Dhanraj, an esteemed Associate Professor, warmly welcomed the gathering, setting the stage for an inspiring and memorable event. With his wealth of knowledge and experience in the field of robotics, Dr. Dhanraj articulated the significance of the "Rapid Tracer" competition, emphasizing its role in nurturing talent and fostering innovation within the realm of engineering and technology. His words of encouragement resonated with participants, instilling a sense of purpose and motivation as they embarked on the challenges ahead.



Figure 3: Dr Joshuva Dhanraj welcoming the gathering.

Dr. Jayavrinda Vrindavanam, the esteemed Head of the Department, inaugurated the event with a profound sense of enthusiasm and inspiration. With a deep understanding of the significance of robotics in contemporary society, Dr. Vrindavanam's inauguration served as a beacon of encouragement for all participants. Through her insightful words, she illuminated the path ahead, highlighting the opportunities and challenges that awaited the aspiring engineers and innovators gathered before her. Dr. Vrindavanam's motivational address ignited a spark within the students, instilling in them a sense of purpose and determination as they embarked on the "Rapid Tracer" journey.



Figure 4: Dr Jayavrinda Vrindavanam addressing the gathering.

Dean, Dr. Udaya Kumar Reddy underscored the pivotal role of the "Rapid Tracer" event in nurturing talent and fostering innovation within the realm of engineering and robotics. He emphasized how these competitions serve as crucial platforms for students to showcase their ingenuity and creativity while honing essential technical skills. Dr. Reddy elaborated on how participation in such events cultivates critical thinking, teamwork, and problem-solving abilities, all of which are indispensable in navigating the dynamic and rapidly evolving field of technology. His impassioned address inspired attendees to fully engage in the challenges and opportunities presented by the competition, reinforcing the institution's commitment to excellence and advancement in the field of robotics.

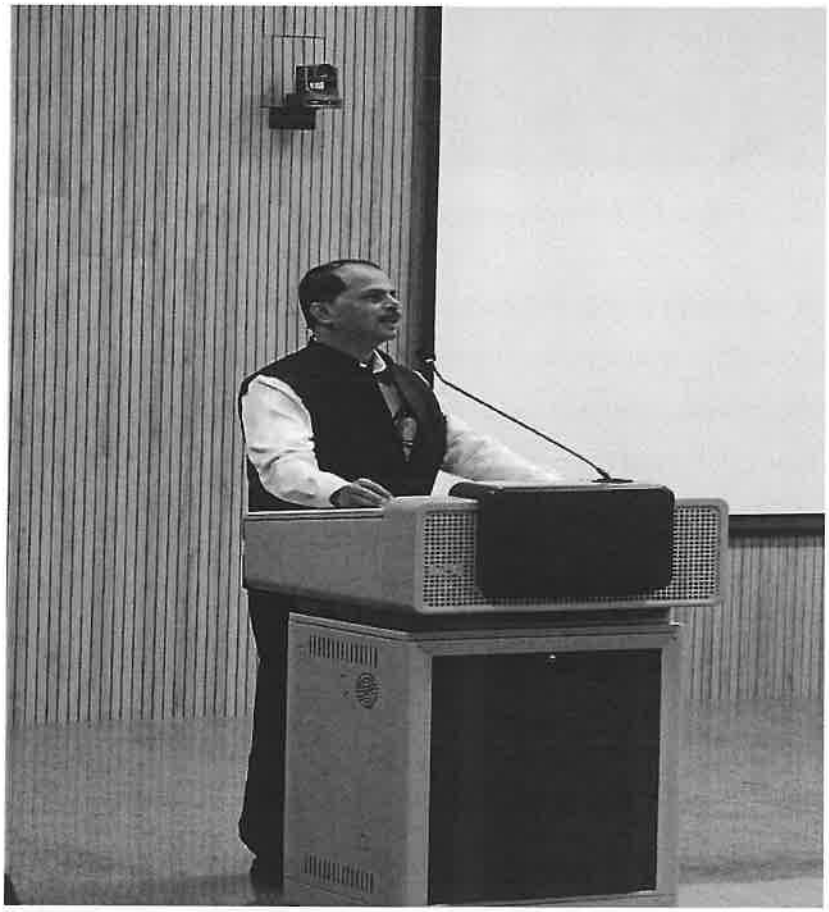


Figure 5: Dr. Udaya Kumar Reddy motivating students.

Dr. Gopal Sharma Joshi, a luminary in the field of robotics, addressed the gathering with wisdom and insight, enriching the atmosphere with his profound understanding of the subject. With a wealth of experience and expertise, Dr. Joshi shared invaluable perspectives on the significance of events like "Rapid Tracer" in fostering innovation and pushing the boundaries of technological advancement. His address resonated deeply with the audience, inspiring them to embrace the challenges of the competition with enthusiasm and determination. Dr. Joshi's words served as a beacon of guidance, encouraging participants to harness their creativity and expertise to drive meaningful change in the realm of robotics.

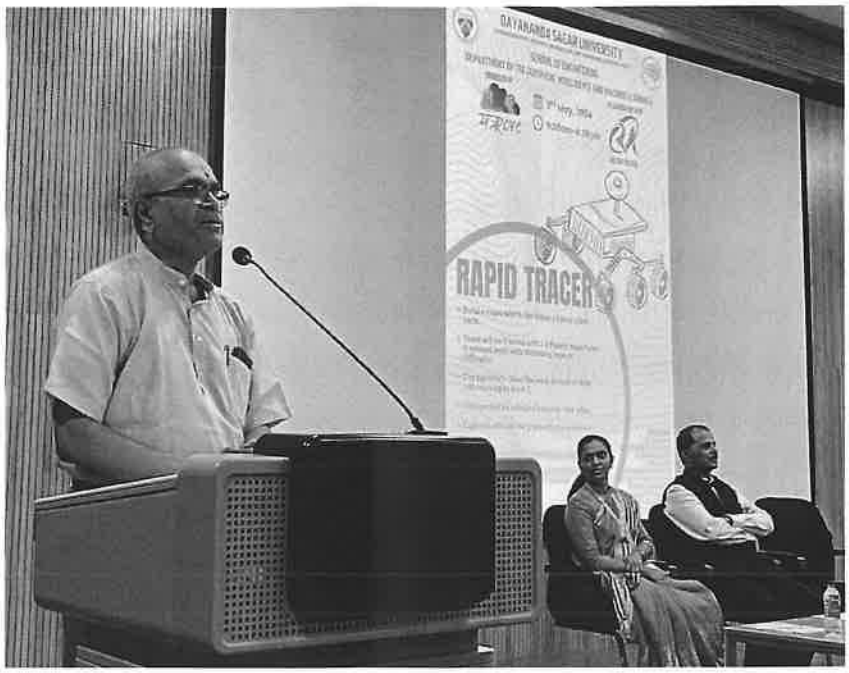


Figure 6: Dr Gopal Sharma Joshi addressing the gathering.

Professor Mitha Guru, renowned for her dedication to academia and her expertise in the field, brought the inaugural ceremony to a close with a heartfelt vote of thanks. In her address, she expressed gratitude to all the dignitaries, participants, organizers, and attendees for their invaluable contributions to the event's success. Professor Guru highlighted the collaborative effort that made the "Rapid Tracer" event possible, emphasizing the importance of teamwork and cooperation in achieving common goals.



Figure 7: Dr Udaya Kumar Reddy presenting a token of gratitude to the guest of honor.

Part-2 -The Knock-down

Following a short interlude for refreshments, participants returned to the arena, reinvigorated, and ready to resume the competition. With renewed energy and focus, they eagerly awaited the next challenge, poised to showcase their skills and determination.

ROUNDS:

1- Prelims
2- Knock-out part 1
3- Knock-out part 2

The "Rapid Tracer" competition unfolded across three rounds, each utilizing a knockdown format to narrow down the field of competitors. In the opening round, consisting of seven teams, the intensity was palpable as robots navigated through intricate courses. Unfortunately, the challenges proved insurmountable for two teams, leading to their elimination. As the competition progressed into the second round, the remaining teams faced even more demanding tasks. Despite their best efforts, one team faltered, unable to overcome the heightened obstacles. With each round, the stakes grew higher, and the pressure mounted for the remaining participants.

In the climactic third round, the atmosphere crackled with anticipation as the top contenders battled it out for supremacy. The challenges presented in this final round pushed the robots and their operators to their limits, testing their agility, precision, and strategic prowess. After an intense display of skill and determination, the top three teams emerged triumphant, their performance in the third round serving as the decisive factor in their success. With their innovative approaches and flawless execution, these teams secured their places at the pinnacle of the competition, showcasing the culmination of months of preparation and dedication.

RULES:

1. Robots must not possess any external connections for power supply or wiring during the event.
2. A penalty will be imposed if a robot traverses outside the designated track.
3. Calibration of robots is permissible only at the commencement of the traversal.
4. No alterations to the programming of robots are permitted after the map is revealed.
5. It is obligatory for a robot to pass through all primary checkpoints.
6. Secondary checkpoints may only be bypassed after the robot has attempted to traverse them at least twice and failed. Penalties will be applied for each checkpoint skipped.
7. External control or command of robots is strictly prohibited. 8. The judge's decisions are considered final.

ROUND -1:

Each participating team was allotted a critical window of two minutes for meticulously calibrating their robots before they embarked on the challenging track. Within this brief timeframe, teams meticulously fine-tuned their robots, ensuring optimal performance and alignment for the demanding tasks that lay ahead. This calibration period served as a crucial opportunity for teams to make last-minute adjustments, refine their algorithms, and address any unforeseen technical glitches, maximizing their chances of success on the track. The intense focus and precision exhibited during this calibration phase underscored the teams' dedication and commitment to achieving peak performance in the "Rapid Tracer" competition.

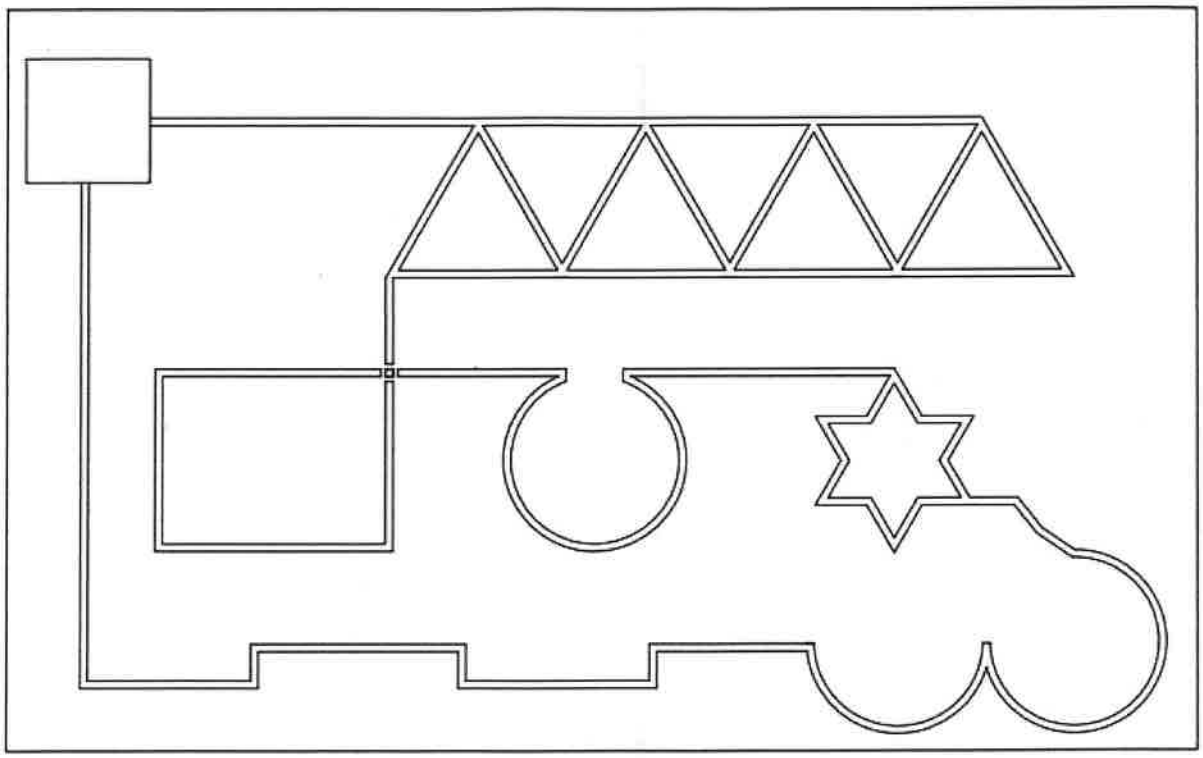


Figure 8: Round 1 Map.

After a rigorous evaluation process, the top five teams distinguished themselves and earned qualification for the second round of the competition. Their exceptional performance in the initial round showcased their mastery of robotics and their ability to navigate the challenges presented with precision and ingenuity.

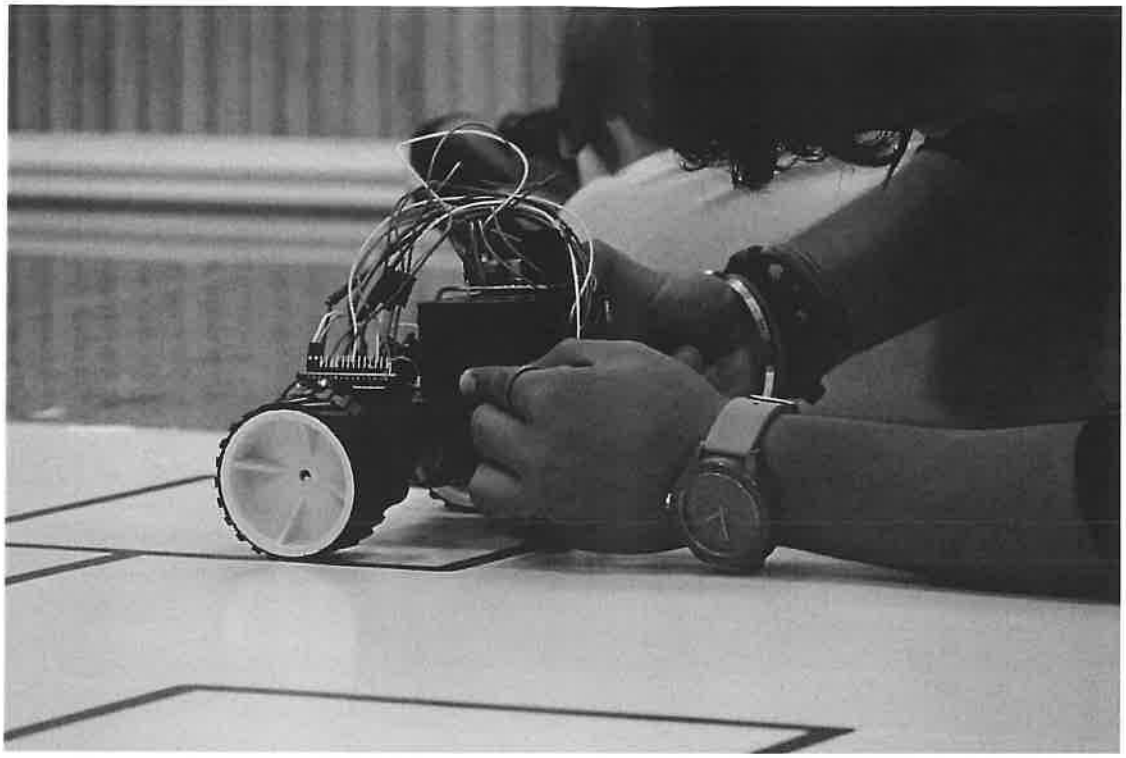


Figure 9: Participants calibrating their robots.

ROUND -2:

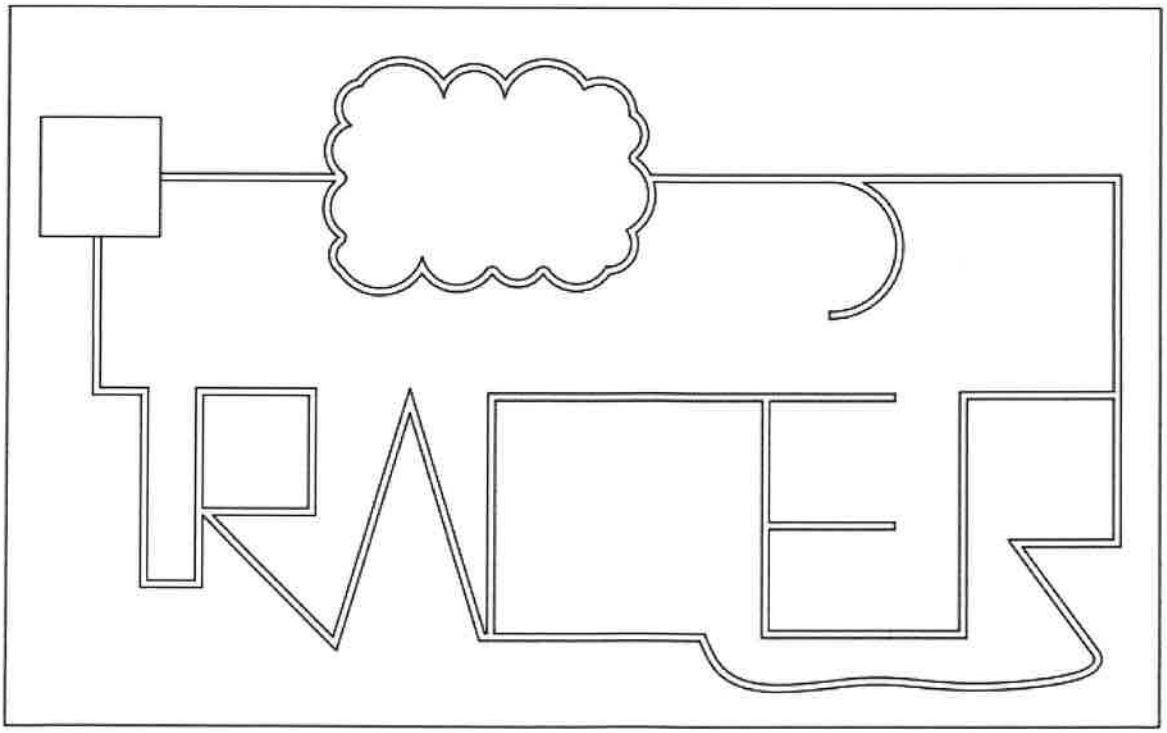


Figure 10: Round 2 Map.



Figure 11: Student coordinators explaining rules to team representatives.

Following a grueling series of challenges in round two, the cream of the crop emerged as the top four teams qualified for the much-anticipated finals. Their stellar performance in round two underscored their resilience, adaptability, and innovative problem-solving skills, distinguishing them as the frontrunners in the "Rapid Tracer" competition. With the stakes raised even higher, these elite teams now set their sights on the ultimate prize, poised to showcase their prowess and vie for victory in the thrilling climax of the event.

ROUND -3:

Winners:	Team: **ETERNATLS** 1. Lokith M R 2. Suhas Vasistha 3. Poomani M 4. Dorechandra	Sri Rajarajeshwari Engineering College
First Runner up:	Team: **Velocity Viper** 1. Pritam Kumar Sahoo	Dayananda Sagar University
Second Runner up:	Team: **Alpha Entiti** 1. Ujjwal Jaiswal 2. Vishwas Kumar keshari 3. Parth rathi 4. Ajeeb Sagar	Dayananda Sagar University

Despite the formidable difficulty level presented in round three, all participants rose to the occasion, demonstrating remarkable skill and perseverance. The challenges in this final round pushed the boundaries of what the robots and their operators could achieve, demanding precise navigation, quick decision-making, and flawless execution. Despite the heightened intensity, each team showcased their expertise and determination, navigating the complex obstacles with grace and ingenuity. The collective performance of all participants in round three was a testament to their dedication and expertise, underscoring the exceptional talent present in the "Rapid Tracer" competition.

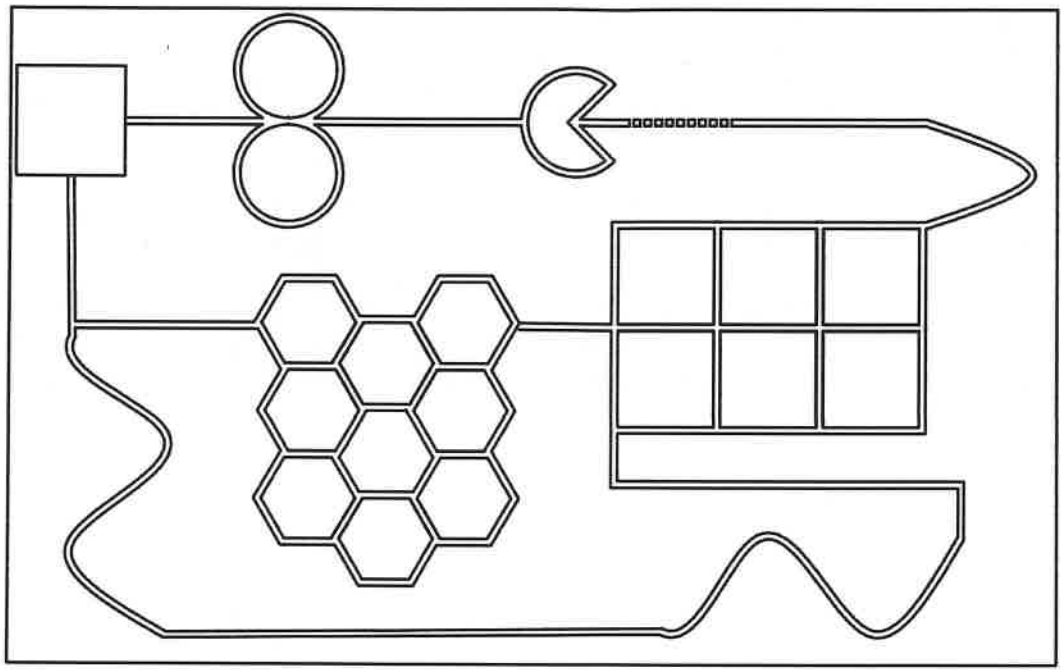


Figure 12: Map of round 3.



Figure 13: Winners with faculty coordinators



Figure 14: First Runner up with faculty coordinators



Figure 15: Second Runner up with faculty coordinators



Figure 16: Student coordinators and faculty coordinators

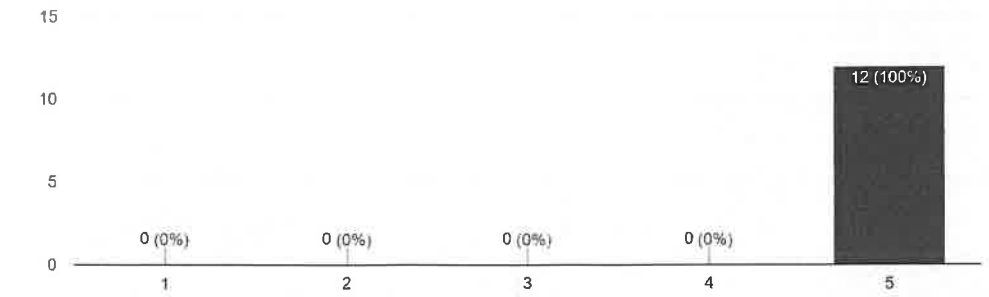


Figure 17: Student coordinators, Participants, and faculty coordinators.

Participant Feedback:

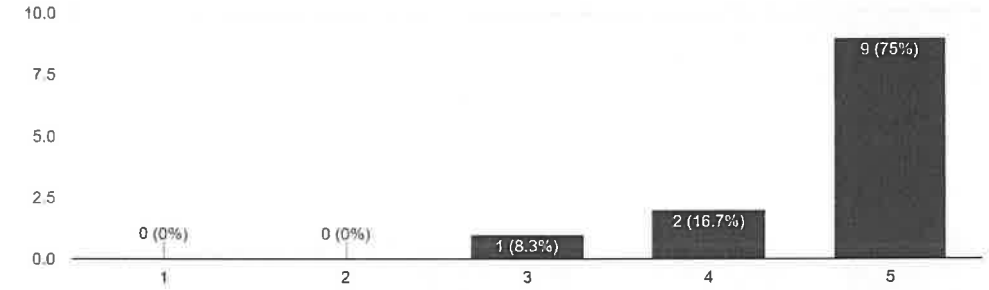
How would you rate the concept of the event?

12 responses



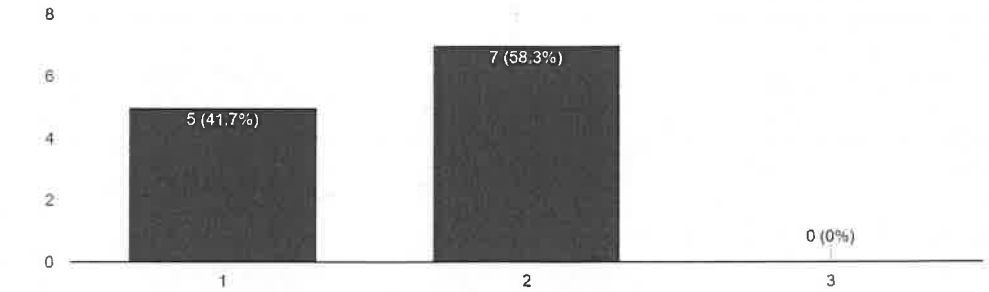
How would you rate the organization?

12 responses



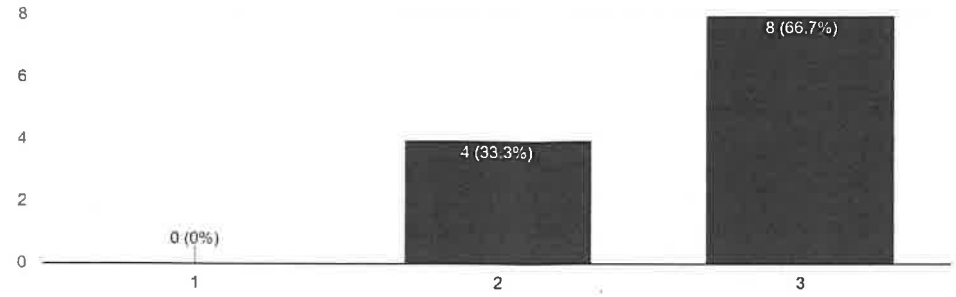
Difficulty level of Map 1?

12 responses



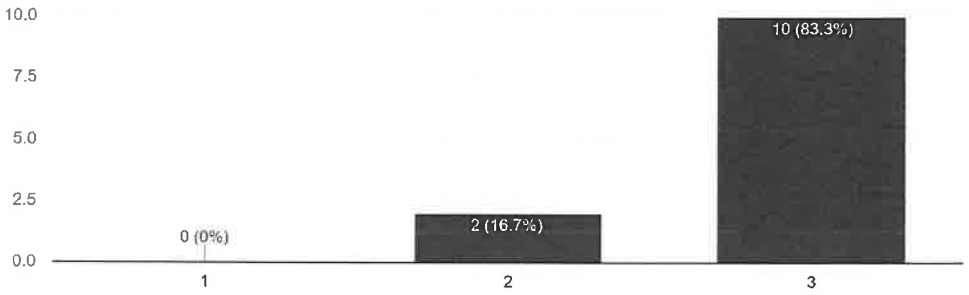
Difficulty level of Map 2?

12 responses



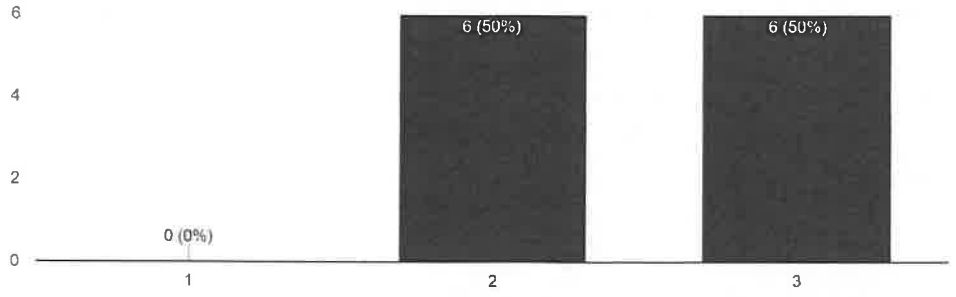
Difficulty level of Map 3?

12 responses



How was the food provided during lunch?

12 responses



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School of Engineering

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YANTROVE

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"Rapid Tracer"

Attendance

Sr. No.	Team Name	Participant Name	Attendance
1	Advaitha	Agasthya R Kumar	
		Deekshitha M	
		C Vishnu Vardhan	
		Gayatri Govinda Setty	
2	Acceleration	Hemsagar H D	
		Harsha Aradhya U	
		Nischith R	
3 ✓	Black & White.	Sachin Prakash Kurup	
		Satvik D Joshi	
		Sharon Zachariah	
		Hena Basheer	
4 ✓	Alpha Entiti	Ajeeb Sagar	
		Ujjwal Jaiswal	
		Vishwas Kumar Keshari	
		Parth Rathi	
5 ✓	Sampati	Parth Dwivedi	
		Ansuman Panda	
		Jatin Tiwary	
		Abhay Pathak	
6 ✓	Lighting	Naren Yashwanth N	
		Varun Kumar. S	
		Yashwanth . N. K	
		~~Shubam~~ SHUBHAM MOTTI	
7 ✗	Dell	Chethan K Murthy	
		Aditya S Hegde	
		Pratyush Chauhan	
		Keshna Bansal	
8 ✓	Velocity Viper	Pritam Kumar Sahoo	
9 ✓	The_Circuit_Strikers	Nilesh Sarkar	
		Prahlad Prakash	
		Mistry Mithul Sureshbhai	
		Adithya G Jangid	

10	SPAR Drive	Supriya Jana	
		Priyanshu Chaubey	
		Arighna Chowdhury	
		Ronak Soni	
11	Prajwal Kumari	Prajwal L	
		Asher Sumith	
		Jeevan. P	
		Lithish M R	
12	ROVER	Rakshitha K M	
		Sanjana S Katti	
		Rohit Sangam	
13	ETERNATUS	Lohith M.R	
		Suhas S Vasishta	
		Poomani M	
		Dorechandra R	
14	Alchemy	Chandana N	
		Tejaswini C	
		Lakshya Yogendranath	

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Public Relations:
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Neha Amin (ENG22AM0117), Student, CSE (Artificial Intelligence and Machine Learning)

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Dr. Mude Nagarjuna Naik, Assistant Professor, CSE (Artificial Intelligence and Machine Learning)

Editors:

Utpal Kumar (ENG22AM0139), Student, CSE (Artificial Intelligence and Machine Learning)
Gaana Shree (ENG22AM0014), Student, CSE (Artificial Intelligence and Machine Learning)



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Coordinator, "YANTROVE" Club.
Faculty Adviser, IEEE RAS SBC, DSU



Prof. Mitha Guru
Assistant Professor, CSE (AI & ML)
Coordinator, "YANTROVE" Club.



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HOD & Chairperson,
Dept. Of CSE (AI & ML)

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